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# Sertifikaat



REPUBLIEK VAN SUID AFRIKA

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DEPARTEMENT VAN HANDEL  
EN NYWERHEID

Hiermee word gesertifiseer dat  
This is to certify that

~~PCTA~~ 2004/00082

12 OCT 2004

# Certificate

REPUBLIC OF SOUTH FRICA

PATENT OFFICE  
DEPARTMENT OF TRADE AND  
INDUSTRY

~~PCTA~~ 2004/00082

REC'D 02 DEC 2004	
WIPO	PCT

the documents annexed hereto are true copies of:

Application forms P.1 and P.3, provisional specification and drawings of South African Patent Application No. 2003/6145 as originally filed in the Republic of South Africa on 8 August 2003 in the name of Jan Petrus Human for an invention entitled: " Mould and moulding apparatus ".

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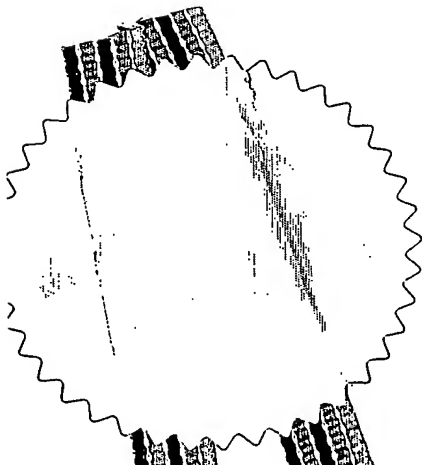
Geteken te  
Signed at  
**PRETORIA**

in die Republiek van Suid-Afrika, hierdie  
in the Republic of South Africa, this

22 dag van  
September 2004  
day of

.....  
Registrar of Patents

**PRIORITY DOCUMENT**  
SUBMITTED OR TRANSMITTED IN  
COMPLIANCE WITH  
RULE 17.1(a) OR (b)



## APPLICATION FOR A PATENT AND ACKNOWLEDGEMENT OF RECEIPT

[Section 30 (1)—Regulation 22]

(See notes overleaf)



The grant of a patent is hereby requested by the undermentioned applicant in duplicate.

Official Application No. <b>20 03 / 6 145</b>	
21	01

(i)	Applicant's or agent's reference

(ii)	71	Full name(s) of applicant(s) .....	HUMAN JAN PETRUS
(iii)		Address(es) of applicant(s) .....	15 LOBELIASTRAAT SOMERSET-WES 7130

(iv)		Title of invention	MOULD AND MOULDING APPARATUS
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(v)		The applicant claims priority as set out on the accompanying form P 2.
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(vi)		This application is for a patent of addition to Patent Application No.
21	01	

(vii)		This application is a fresh application in terms of section 37 and based on Application No.
21	01	

(viii)		This application is accompanied by:
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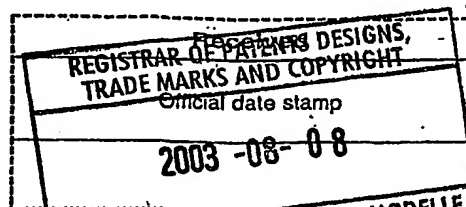
1.	A single copy of a provisional or two copies of a complete specification of..... <b>3</b> .....pages.			
2.	Drawings of..... <b>4</b> .....sheets.			
3.	Publication particulars and abstract (form P 8 in duplicate).			
4.	A copy of Figure.....of drawings (if any) for the abstract.			
5.	An assignment of invention.			
6.	Certified priority document(s) (state number).			
7.	Translation of the priority document(s).			
8.	An assignment of priority rights.			
9.	A copy of the form P 2 and the specification of S.A. Patent Application No. <table border="1"><tr><td>21</td><td>01</td><td></td></tr></table>	21	01	
21	01			
10.	A declaration and Power of Attorney on form P 3.			
11.	Request for anté-dating on form P 4.			
12.	Request for classification on form P 9.			
13.				

(ix)	4	Address for service: <b>BRIAN BACON &amp; ASSOCIATES</b> <b>P.O. BOX 3953 SOMERSET-WES 7129</b>
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ted this..... **5 TH** ..... day of..... **AUGUST** ..... **2003** .....

Signature of applicant(s) or agent

The duplicate will be returned to the applicant's address for .....



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REPUBLIC OF SOUTH AFRICA  
PATENTS ACT, 1978  
DECLARATION AND POWER OF ATTORNEY  
(Section 30 - Regulation 8, 22(i)(c) and 33)

FORM P.3

PATENT APPLICATION NO  
Od 2003/6145

REF:

LODGING DATE  
22 2003-08-08

FULL NAME(S) OF APPLICANT(S)

HUMAN JAN PETRUS

FULL NAME(S) OF INVENTOR(S)

HUMAN JAN PETRUS

EARLIEST PRIORITY CLAIMED	COUNTRY	NUMBER	DATE
	33	31	32

RE: The country must be indicated by its International Abbreviation - see schedule 4 of the Regulations

TITLE OF INVENTION

MOULD AND MOULDING APPARATUS

I/We HUMAN JAN PETRUS

hereby declare that :-

1. I/we am/are the applicant(s) mentioned above;
2. I/we have been authorized by the applicant(s) to make this declaration and have knowledge of the facts herein stated in the capacity of of the applicant(s);
3. the inventor(s) of the abovementioned invention is/are the person(s) named above and the applicant(s) has/have acquired the right to apply by virtue of an assignment from the inventor(s);
4. to the best of my/our knowledge and belief, if a patent is granted on the application, there will be no lawful ground for the revocation of the patent;
5. this is a convention application and the earliest application from which priority is claimed as set out above is the first application in a convention country in respect of the invention claimed in any of the claims; and
6. the partners and qualified staff of the firm of , patent attorneys, are authorised, jointly and severally, with powers of substitution and revocation, to represent the applicant(s) in this application and to be the address for service of the applicant(s) while the application is pending and after a patent has been granted on the application.

SIGNED AT SOMERSET-WES

THIS 5 TH DAY OF

AUGUST

2003

SIGNATURE(S)  
(no legalization necessary)

In the case of application in the name of a company, partnership or firm, give full names of signatory/signatories, delete paragraph 1, and enter capacity of each signatory in paragraph 2.  
If the applicant is a natural person, delete paragraph 2.  
If the right to apply is not by virtue of an assignment from the inventor(s), delete "an assignment from the inventor(s)" and give details of acquisition of right.  
For non-convention applications, delete paragraph 5.

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## REPUBLIC OF SOUTH AFRICA

PATENTS ACT, 1978

## PROVISIONAL SPECIFICATION

(Section 30(1) - Regulation 27)

Official Application No.			Lodging Date	
21	Q1	2003/6145	22	2003-08-08

Full name(s) of applicant(s)	
71	HUMAN JAN PETRUS

Full name(s) of inventors(s)	
72	HUMAN JAN PETRUS

Title of invention	
54	MOULD AND MOULDING APPARATUS

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## **FIELD OF THE INVENTION**

This invention relates to the production of moulded articles and the apparatus such as injection moulding, compression moulding for producing moulded articles such as closures.

## **BACKGROUND OF THE INVENTION**

Different techniques are in commercial use and by means of which articles such as closures and preformed bottles are manufactured using synthetic plastic materials.

Injection moulding is the most commonly used this method comprise two mould parts pressed into a shutoff position, molten synthetic plastic material is forced through a small hole to take up the shape of the space between the two mould parts.

Compression moulding comprises a rotating carousel on which female moulds are mounted, whilst the carousel is rotating a pellet of molten synthetic plastic material is displaced from a extruding device into the female mould, a male mould comprising shutoff means is pressed onto the female mould and the core eventually shapes the article. This technique is used for the production of closures where high production volumes are required. There are certain limitations insofar moulding specific articles such as closures with undercut e.g. scoring line, slits, gaps and holes in the article.

## **BRIEF DESCRIPTION OF THE INVENTION**

According to one aspect of the present invention there is provided a mould comprising a female mould which include at least one plunger which reciprocate inside the bore of the said female mould, means for displacing mouldable material into said female mould, a male core pressed onto the female mould, said plunger being forced forward with mechanical means, urging the said mouldable material to take up shape of the defined space between the mould parts.



Said moulding technique, comprise the means to first shutoff mould sets, which include protrusions inside the defined space to make undercuts e.g. slits, gaps or holes in articles such as closures.

In our South African patent application filed 30 July 2003 we disclosed a mould and method of moulding comprising a female mould which reciprocate on at least one shaft which can be attached at one end, means for displacing mouldable material into said female mould, a male mould forced onto the female mould, urging the said material to take up shape of the space between the two mould parts.

The disclosure of the specifications of the South African patent application filed 30 July 2003 is hereby incorporated into the disclosure of the present specification.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

For a better understanding of the present invention, and to show how the same may be carried into effect, reference will now be made, by way of example, to the accompanying drawings in which:-

Figure 1 is an isometric view of an open male and female mould.

Figure 2 is a front view of a male and female mould, the female mould comprise a reciprocating plunger.

Figure 3 is a front view of a male and female mould closed.

Figure 4 is a front view of a male and female mould closed showing the moulded product.

### **DETAILED DESCRIPTION OF THE DRAWINGS**

Figure 1 shows the recess 13 of the female mould 12 and the cavity 14 where the core 10.1 of the male mould 10 engages.

Figure 2 is the said male mould 10 and female mould 12 open, which receives mouldable material 11. The female mould 12 is attached at the end 20 onto a

moulding device not shown. The female mould 12 comprises a bore 21 which guide a reciprocating plunger 17 during the moulding process.

Figure 3 is the male mould 10 and the female mould 12 closed. The male mould 10 comprises a treaded core 10.1 which fits into the female cavity 14; the shutoff space between the walls of the female cavity 14 and the core 10.1 defines the shape of the cap 18 as described in Figure 4.

Figure 4 is the said closed moulds 10 and 12; the shaft 17 is forced towards the end 22 of the bore 21 with mechanical means forming the cap 18. Mechanical means can comprise methods such as hydraulics used on injection moulding and a rotating carousel comprising a cam system used on compression moulding.

This method of moulding mouldable material inside the mould can also produce articles such as a preform without an injection point.

The said moulds and method of moulding inside the moulds can be fitted to any known moulding machine using their operating means to produce articles.

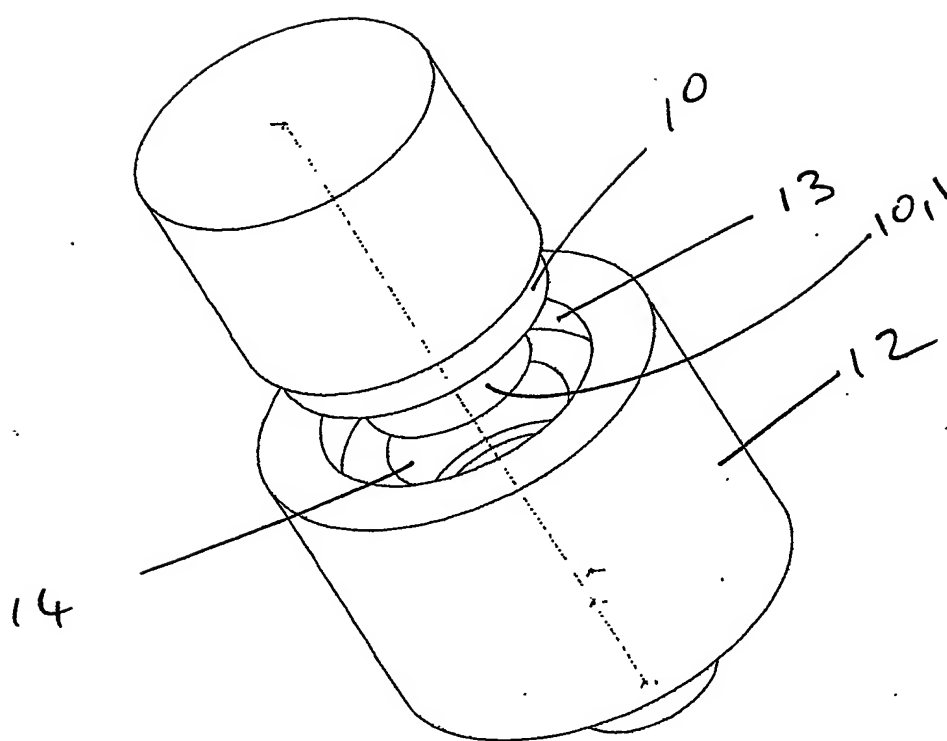


FIG. 1

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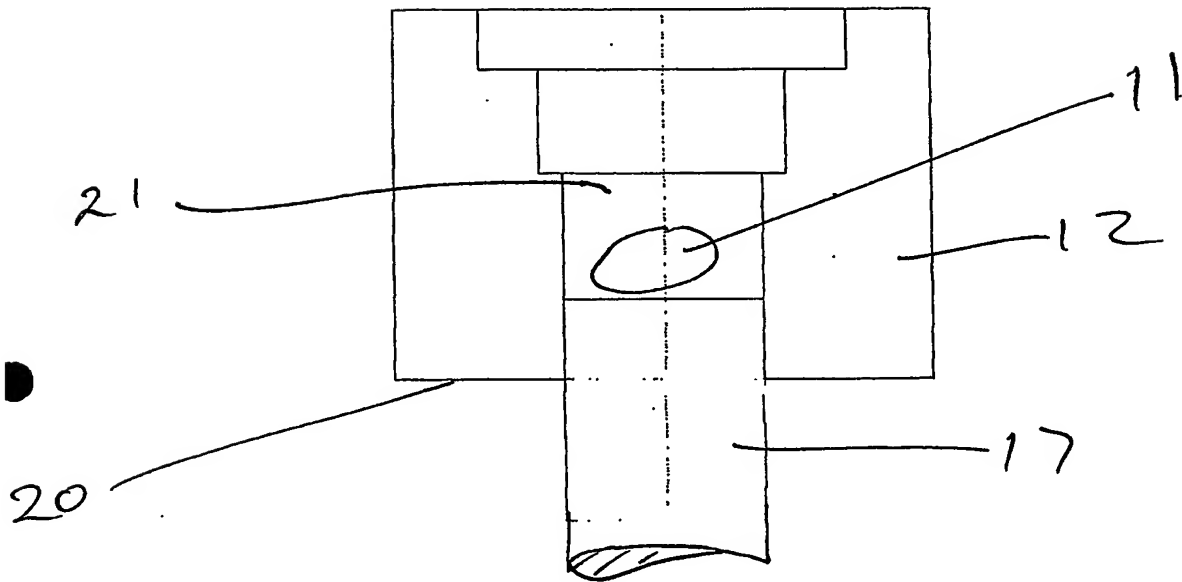
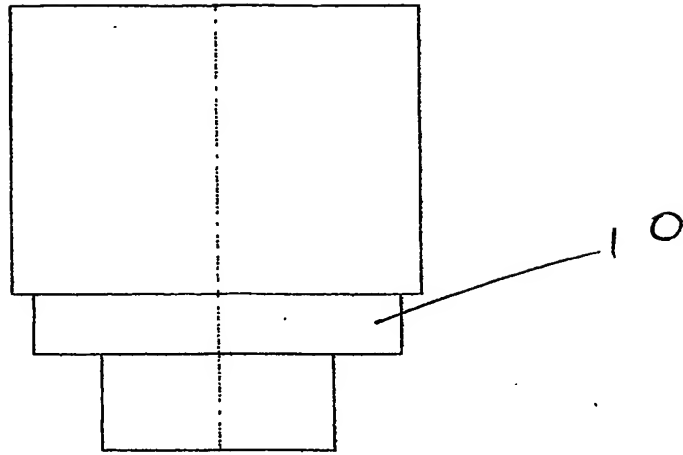


FIG 2

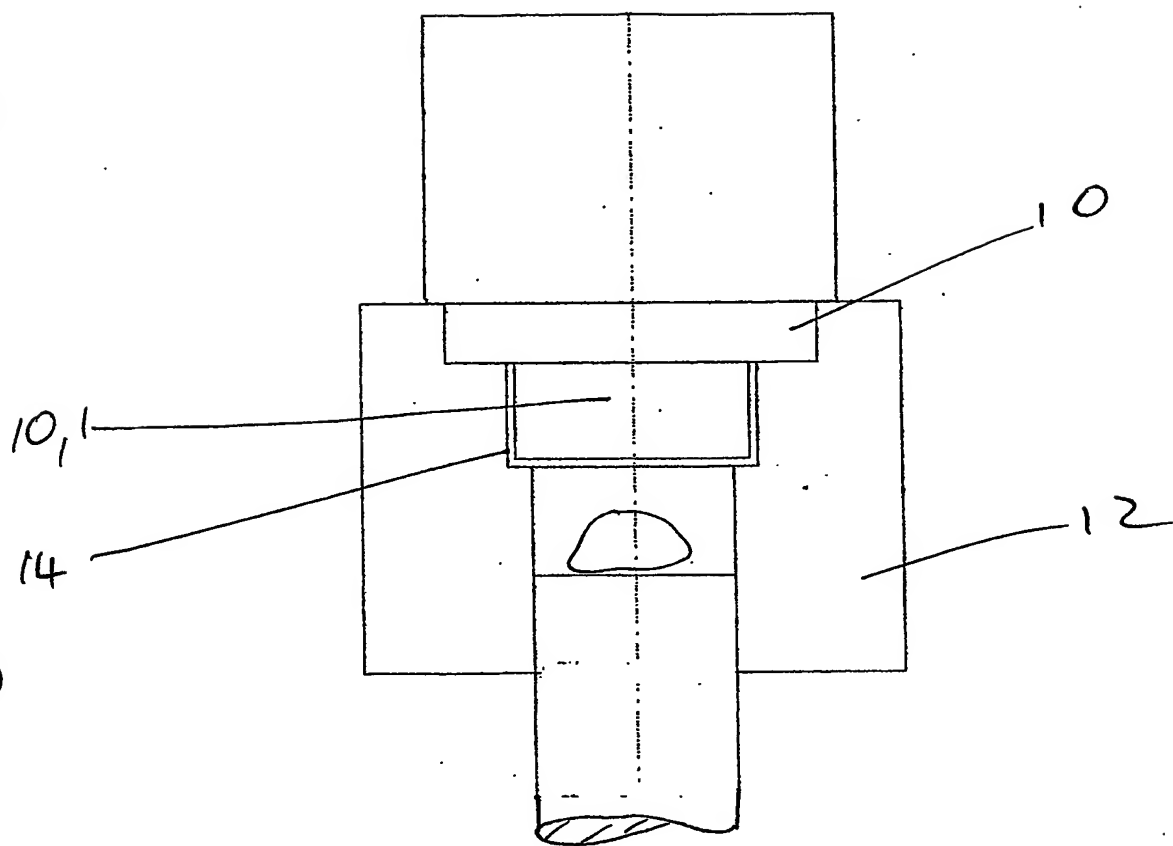


FIG 3

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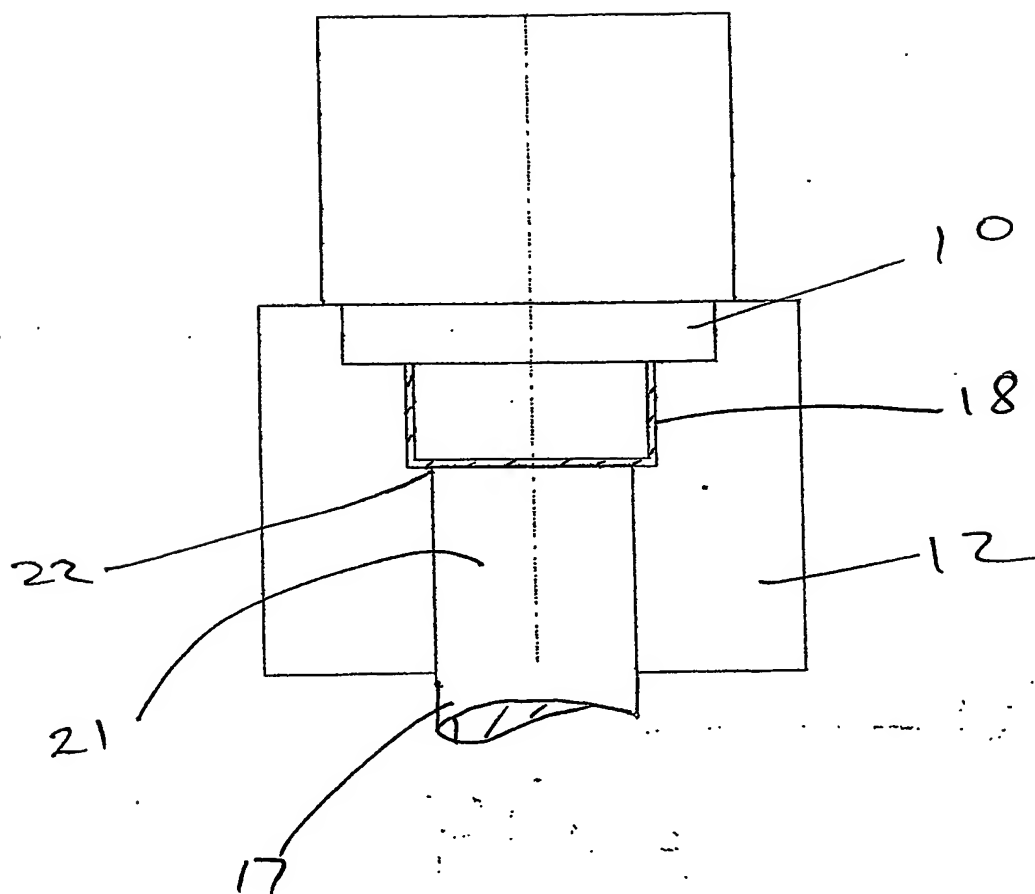


FIG 4

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